

Intention to use Governmental Micro-Video in the Pandemic of Covid-19: An Empirical Study of Governmental Tik Tok in China

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Abstract – Micro-video is one of the fastest-growing patterns in the e-government system. It becomes a key tool for the relationship between government and citizens in the digital age. The governments from lower to upper levels launch their own official accounts abundantly and actively to show their work interestingly. Based on the Technology Acceptance Model and Theory of Planned Behavior, this study empirically tests which factors can greatly influence citizens' intentions to adopt governmental micro-video during the pandemic of Covid-19. The results show that PEU, PU, AT, SN, and PBC can positively affect intention to adopt governmental micro-video. Policy suggestions are given based on the findings of this research.

Keywords-governmental micro video; acceptance intention; Covid-19; Tik Tok; China

I. INTRODUCTION

Information Communication Technologies (ICTs) is altering the way government interacts with citizens [1]. Micro video becomes one of the fastest-growing patterns in China's e-government system. This tool offers a new way to build a relationship with citizens. It helps the government send information interestingly and effectively, improving transparency, effectiveness, and satisfaction.

During the pandemic of Covid-19, governments in China have made a great effort to limit the expansion of the virus. Governmental micro-video can show these work directly to the public and thus improve public trust as well as satisfaction.

Despite governmental micro-video plays a significant role in enhancing the relationship between the government

and the public, there is very little attention to government micro-video acceptance intention. Thus, based on the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB), this study statistically examines which factors can greatly stimulate citizen's motivations to use governmental micro-video. It conducted an empirical study in China. Tik Tok, one of the most popular short video platforms in China was employed as a research target. The findings of this research can help government agencies and other social sectors improve the quality of micro-video and strengthen the adoption rate of the governmental micro-video.

The rest part of this article is structured as follows: Section 2 presents the literature review and research hypotheses. Section 3 introduces the method in this study, following by research results in Section 4. Section 5 discussed research results and Section 6 concludes the research work.

II. LITERATURE REVIEW AND RESEARCH HYPOTHESES

According to many previous studies on Information Systems (IS), perceived ease of use (PEU) and perceived usefulness (PU) are regarded as significant factors to stimulate IS acceptance intention [2], [3], [4]. According to TAM, PEU means the degree to which a person imagines the information system is easy to use [5]. PU means the degree to which a person considers the use of IS as useful [6]. The roles of PEU and PU in stimulating user's motivation to adopt IS have been proved by many works of literature [3], [4], [6]. Thus, people's intentions to use governmental micro-video may also be positively influenced by these two factors. Thus, the first and second hypotheses are proposed:

H1. PEU has a positive influence on citizens' intentions to adopt governmental micro-video.

H2. PU has a positive influence on citizens' intentions to adopt government micro-video.

Another theory that is used in IS acceptance research is the Theory of Planned Behavior (TPB). TPB predicts people's behavioral intention from three factors, attitude (AT), subjective norm (SN), and perceived behavioral control (PBC) [7]. AT refers to people's evaluation of IS [8]. Generally, people have positive attitudes toward an IS, they will be more likely to use it. Besides, SN captures social pressure on people's behavior [9]. People are influenced by the social environment where they exist. Those people surrounding a person, such as family, friends, and colleagues, can affect this person's behavioral intention. For example, if one's family, friends and colleagues recommend this one to adopt governmental micro-video, this person will feel pressure and have stronger motivation to use it. Meanwhile, PBC is defined as the degree to which people think performing a behavior is easy or difficult [10]. When people feel that they have the knowledge, time, and facilities to adopt a IS, they are more likely to use it. Thus, the third, fourth, and fifth hypotheses are proposed:

H3. Citizens' AT toward governmental micro-video have a positive influence on intentions to adopt.

H4. SN has a positive influence on citizens' intentions to adopt governmental micro-video.

H5. PBC has a positive influence on citizens' intentions to adopt governmental micro-video.

III. METHOD

A. Research Data

This study conducted a questionnaire survey to collect data. Before the formal survey, a pretest was conducted to make sure the validity of the questionnaire. 23 students were recruited to answer the questions in the survey, 1 associate professor in the public administration field was invited to give suggestions to the survey. According to their feedback, modify several measurement items.

The formal survey was conducted through an online questionnaire. A total of 331 questionnaires were distributed, after deleting samples according to demographic factors, such as location and age, there were 301 valid questionnaires. The final samples include 132 males and 169 females. Table 1 shows the demographic information of the respondents.

B. Measurement

The measurement items in this paper were according to previous studies. Especially, measurement items testing PEU were modified by Liu et al., [3], measurement items examining PU were adapted from the work by Davis [5], measurements testing AT were modified by Ajzen [8], measurements testing SN were adapted from Ozkan and Kanat [9], measurements examining PBC were adapted from Tarhini et al., [10], items measuring IA were adapted from Pavlou [11]. All the items were measured by Five-Likert point, from 1 (very disagree) to 5 (very agree).

TABLE I. DEMOGRAPHIC INFORMATION

Category	Number	Percentage
Male	132	43.9%
Female	169	56.1%
18-30	110	36.5%
31-40	159	52.8%
41-50	20	6.6%
Over 50	12	4.1%
Below high school	30	10%
High school/Technical college	99	32.9%
University	172	57.1%

IV. RESULTS

A. Measurement of the research model

This study examined the proposed hypotheses (H1-H5) by using path analysis with structural equation modeling in IBM SPSS Amos 23.

Table 2 shows the results of the confirmatory factor analysis. All factor loadings were over the recommended value of 0.60 [12]. Cronbach's alphas for all constructs were above the recommended reliability level (0.70) [13]. The AVE for each construct exceeds 0.50 [14], establishing convergent validity. The composite reliability for all constructs exceeds the value of 0.60 [15].

TABLE II. LOADINGS OF INDICATOR VARIABLES

Construct	Items	Factor loading	Cronbach's Alpha	CR	AVE
PEU	PEU1	0.823	0.884	0.885	0.726
	PEU2	0.893			
	PEU3	0.836			
PU	PU1	0.758	0.770	0.781	0.558
	PU2	0.654			
	PU3	0.791			
AT	AT1	0.631	0.760	0.755	0.531
	AT2	0.683			
	AT3	0.783			
SN	SN1	0.851	0.822	0.841	0.640
	SN2	0.655			
	SN3	0.861			
PBC	PBC1	0.636	0.883	0.878	0.790
	PBC2	0.782			
	PBC3	0.723			
IA	IA1	0.761	0.886	0.885	0.725
	IA2	0.767			
	IA3	0.891			

As shown in Table 3, the inter-construct correlation matrix proved that all values met these recommendations, suggesting reliable discriminant validity.

Table 4 shows the model fit indices. According to Table 4, CMN/Df=2.134, RMSEA=0.053, CFI=0.923, NFI=0.931, GFI=0.941, RMR=0.022, TLI=0.921, IFI=0.929. All of them were higher than the recommended values by previous literature, indicating that the measurement model of factor fitness was satisfactory [16], [17].

TABLE III. DISCRIMINANT VALIDITY

	PEU	PU	AT	SN	PBC	IA
PEU	0.853					
PU	0.572	0.841				
AT	0.631	0.668	0.734			
SN	0.475	0.474	0.713	0.800		
PBC	0.643	0.582	0.483	0.515	0.841	
IA	0.538	0.528	0.481	0.684	0.477	0.851

TABLE IV. MODEL FIT INDICES

Model fit indices	Measurement model	Recommended value
CMN/Df	2.134	<3
RMR	0.022	<0.05
RMSEA	0.053	<0.06
CFI	0.923	>0.9
NFI	0.931	>0.9
GFI	0.941	>0.9
TLI	0.921	>0.9
IFI	0.929	>0.9

B. Hypotheses testing

Fig. 1 shows the results of path analysis. According to Fig. 1, PEU has positive and significant effects on people’s intentions to adopt governmental micro-video (b=0.216, p<0.01), supporting H1. PU is positively and significantly correlated with intention to adopt (b=0.593, p<0.001). Therefore, H2 is supported. AT has a positive impact on the intention to adopt (b=0.154, p<0.05), offering support to H3. SN is positively related to citizens intention to adopt (b=0.542, p<0.001). Thus, H4 is supported. PBC is positively related to the intention to adopt (b=0.633, p<0.001), supporting H5. Thus, totally all the research hypotheses are supported. Table 5 shows the results of hypotheses testing.

TABLE V. RESULTS OF HYPOTHESES

Hypotheses	Results
1	Positive
2	Positive
3	Positive
4	Positive
5	Positive

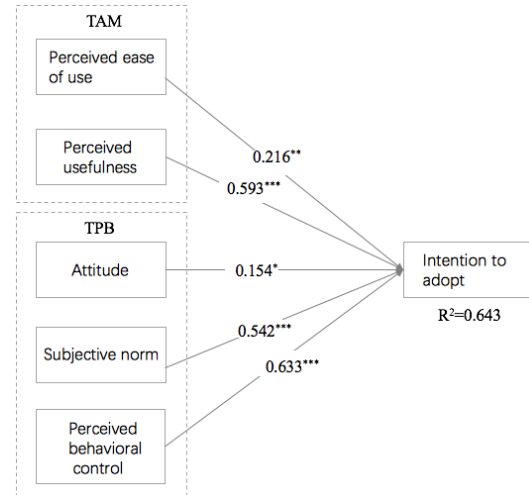


Fig. 1. Results of path analysis.
 *p<0.05, **p<0.01, ***p<0.001

V. DISCUSSION

As one of the fastest-growing patterns in China’s e-government system, governmental micro-video improves administration effectiveness, transparency, and public trust, which in return offers a new way to build a relationship with citizens. Thus, it is important to investigate which factors can stimulate people’s intentions to adopt governmental micro-video.

First, the findings of this study show that PEU has great impacts on the intention to adopt, indicating that government agencies and micro-video platforms need to make the operation of governmental micro-video more simple. For example, it can shorten the operation process and use more easy images in the windows of platforms.

Second, PU is positively related to intention to use, suggesting that people care about the benefits brought by government micro-video. Thus, it is important to improve the quality of micro-videos. Considering that most people watch governmental micro-video because they need information about the policy, governmental micro-video can offer more information related to policy timely.

Third, AT has a positive impact on people’s intentions to adopt governmental micro-video. This result reveals that it is necessary for governments in China to improve citizens’ perceptions of governmental micro-video. Implementing some projects to achieve this purpose is a considerable approach.

Forth, the results in this study show that SN has a positive influence on intention to use. Thus, it is important to make a concert with a variety of social organizations, such as schools, communities, companies and institutes to ensure that a large number of people can adopt government micro-video. These people will influence more people who are closed to them.

Finally, the findings in this study show that PBC has positively affected the intention to adopt. Thus, it is important to start some educational projects to teach people the necessary knowledge about the governmental micro-

video. The knowledge can help them cultivate the habit of use. Besides, the government should invest in ICTs infrastructures to improve the facilitating conditions. With the improvement of facilitating conditions, the obstacles to adopting governmental micro-video will be reduced. As a result, more people will have the motivation to adopt governmental micro-video.

VI. CONCLUSION AND LIMITATION

Micro-video becomes one of the fastest-growing patterns in China's e-government system. This tool offers a unique way to build a relationship with citizens. It helps the government send information interestingly and effectively, improving transparency, effectiveness, and satisfaction. Although governmental micro-video plays a significant role in enhancing the government-citizen relationship, there is very little attention to government micro-video acceptance intention. Thus, based on TAM and TPB, this study statistically examines the determinants behind citizens' intentions to use governmental micro-video. It selected Tik Tok in China as a research target, the results show that PEU, PU, AT, SN, and PBC have positive and significant impacts on people's intentions to adopt governmental micro-video.

However, this research is not without limitation. Initially, 301 samples were collected. Thus, the results of this research may not be generalized to the whole of China. Secondly, choose an online survey and this exclude a group of people. Thirdly, analyze the data through demographic differences. Thus, future research may continue the research by comparing the differences between males and females.

REFERENCES

- [1] Zhu, Y, and Kou, G. "Linking Smart Governance to Future Generation: A Study on the Use of Local E-government Service among Undergraduate Students in a Chinese Municipality." *Informatics*, vol. 6, Oct. 2019, pp. 45.
- [2] Brewer, G. A. Neubauer, B. J. and Geiselhart, K. "Designing and implementing e-government system critical implication for public administration and democracy." *Administration and Society*, vol. 38, April. 2006, pp. 472-499.
- [3] Liu, Y. Li, H. Kostakos, V. Goncalves, J. Hosio, S. and Hu, F. "An empirical investigation of mobile government adoption in rural China: A case study in Zhejiang province." *Government Information Quarterly*, vol. 31, Jun. 2014, pp. 432-442.
- [4] Oni, A. A. Oni, S. Mbarika, V. and Ayo, C. K. "Empirical study of user acceptance of online political participation: Integrating civic voluntarism model and theory of reasoned action." *Government Information Quarterly*, vol. 34, Feb. 2017, pp. 317-328.
- [5] Davis, F. D. "Perceived usefulness, perceived ease of use, and user acceptance of information technology". *MIS Quarterly*, vol. 13, Jun. 1989, pp. 319-339.
- [6] Lee, T. Park, H. and Lee, J. "Collaborative accountability for sustainable public health: A Korean perspective on the effective use of ICT-based health risk communication." *Government Information Quarterly*, vol. 36, Feb. 2019, pp. 226-236.
- [7] Saeri, A. Ogilvie, C. La Macchia, S. T. Smith, J. R. and Louis, W. R. "Predicting facebook users' online privacy protection: Risk, trust, norm focus theory, and the theory of planned behavior." *The Journal of Social Psychology*, vol. 154, Feb. 2014, pp. 352-369.
- [8] Ajzen, I. "The theory of planned behavior." *Organizational Behavior and Human Decision Processes*, vol. 50, Jun. 1991, pp. 179-211.
- [9] Ozkan, S. and Kanant, I. E. "E-government adoption model based on theory of planned behavior: Empirical validation." *Government Information Quarterly*, vol. 28, Jun. 2011, pp. 503-513.
- [10] Tarhini, A. El-Masri, M. Ali, M. and Serrano, A. "Extending the UTAUT model to understand the customers' acceptance and use of internet banking in Lebanon." *Information, Technology & People*, vol. 29, Oct. 2016, pp. 830-849.
- [11] Pavlou, P. A. "Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model." *International Journal of Electronic Commerce*, vol. 7, Jun. 2003, pp. 101-134.
- [12] Anderson, J. C. and Gerbing, D. W. "Structural equation modeling in practice – a review and recommended 2-step approach." *Psychol. Bull.*, vol. 103, Jun. 1988, pp. 411-423.
- [13] Park, M. J. Choi, H. Kim, S. K. and Rho, J. J. "Trust in government's social media service and citizen's patronage behavior." *Telematics and Informatics*, vol. 32, Jun. 2015, pp. 629-641.
- [14] Fomell, C. and Larcker, D. F. "Evaluating structural equation models with unobservable variables and measurement error." *J. Mark. Res.*, vol. 18, Nov. 1981, pp. 39-50.
- [15] Gefen, D. and Straub, D. W. "A practical guide to factorial validity using PLS-graph: Tutorial and annotated example." *Commun. ACM*, vol. 16, Dec. 2005, pp. 91-109.
- [16] Ba, S. and Pavlou, P. A. "Evidence of the effect of trust building technology in electronic markets: Price premiums and buyer behavior." *MIS Quarterly*, vol. 26, Jun. 2002, pp. 243-268.
- [17] Browne, M. W. and Cudeck, R. "Single sample cross-validation indices for covariance structures." *Multivariable Behavioural Research*, vol. 24, Dec. 1989, pp. 445-455.